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An Introduction to the Indiana Sand Dunes

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A unique and fascinating recreational area for a large portion of the millions of inhabitants of Chicago, Gary and vicinity, is afforded by the Sand Dunes of Indiana. Most people of Chicago do not realize what a remarkable piece of nature lies at their convenient disposal, and many more fail to appreciate its unusual beauty and formation.

Sand dunes in themselves are nothing unusual, for they exist throughout the world, but the presence of a large tract of dunes in the middle west makes this region of great interest. One may encounter these sand dunes in various places along the Lake Michigan boundary of the states of Wisconsin, Illinois, Indiana and Michigan. However, the most interesting stretch and also the most important one is that belt starting at Miller, Indiana, only 42 miles from the heart of Chicago, and extending to Michigan City, Indiana, embracing the Indiana Dunes State Park, which is the particular region undertaken in this treatise.

A good highway system enables one to reach the State Park in less than two hours from the center of Chicago. Railroads, interurban lines and even steamships offer means of transportation to the dunes, making this wonderland available to everyone. For the week-end visitor this region offers numerous recreational facilities. Swimming in cool Lake Michigan with miles of wide, clean, sandy beaches makes this the ideal sport. When the sands become too hot, the forests immediately behind the beaches afford excellent shelter. Hiking through the woods along well-marked trails, up and down great sand hills as high as 200 feet brings beautiful Lake Michigan into full view on one side, while wooded valleys are seen adorning the inland. Cumbrous hiking boots are unnecessary to traverse the surface of these trails of light forest litter and sand, which can be hiked to a considerable extent even in bare feet. For the naturalist, a more interesting region is difficult to find in the mid-west, where there exists such a wide variety of physiography and plant as well as animal life in such a limited area.

Although a considerable amount of material has been written on sand dunes, the purpose of this article is mainly to give an account of the tree and shrub growth found in and around the Indiana State Dunes Park, touching briefly on the physiography of the dunes in order to offer a better understanding of the existence of so large a variety of plant growth.

The formation of sand dunes is brought about by the agencies of wind (aeolian) and water (neptunian) sediments. The transportation power of water is vastly greater than that of wind, but wind is the most significant element in dune growth. Since the shore line direction along the Indiana Dunes tate Park averages N. 60 degrees E., winds with a westerly component are most significant in dune transformations*. Gales—40 miles per hour and over—are of great importance in the dunes, since one day of gale may result in greater changes than several months of normal breezes.

Courtesy: Indiana Department of Conservation

Waverly Beach, Indiana Dunes State Park, Indiana.

Rainfall averages 33 inches a year, each month having at least two inches, thus affording abundant moisture for diversified vegetation. The sand is too coarse to permit capillary attraction to bring moisture to the surface for evaporation. This means that much of the moisture is available for vegetation, and at all times, there is moist sand at a depth of a few inches.

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*Cressey, G. B., "The Indiana Sand Dunes and Shore Lines of the Lake Michigan Basin."

The topography of this region is traced to lacustrine and eolian processes, operative since the retreat of the Wisconsin ice sheet. The physiography of the main dune complex along Lake Michigan is the outstanding feature. This section averages one mile in width and is almost entirely forested, except for the areas of shifting sand near the shore, which project inland from the lake into the wooded tract as great tongues of sand and are commonly free from vegetation. Within the dune belt, the very uneven topography consists of hills, short ridges and basins characteristic of dune tracts. Some slopes are as steep as 32 degrees, the angle of rest for loose sand. Irregular hollows often lie within the dunes complex. Level tracts separating the dune belts are typically marsh muck land, with little relief, and where undrained and uncultivated, the land tracts are covered with grasses or swamp vegetation.

The highest points of elevation are along the shore line—Mt. Tom, of 200 feet, being the highest. With respect to our western mountains, this point can hardly be justified as being called a mountain, but when one considers the composition of this peak as pure sand, it is truly a mountain. A bird's-eye view of duneland and lower Lake Michigan can be had from the top of Mt. Tom, which also has on it a high fire look-out tower, owned by the Indiana Department of Conservation.

A few of the many interesting features along the beach are the "blowouts" and the so-called "singing sands". The "blowouts" are amphitheater-like excavations formed by wind erosion and consequent movement of sand landward. They are found along elongated areas of bare sand, projecting tongue-like inland from shore. The "singing sands" is an interesting phenomenon. as the sands emit a singing or resinous sound when disturbed by the "scuffling" of the feet or by the passing of a stick through the sand. The area in which this peculiar sand is found is a narrow belt, 25 to 100 feet wide, extending parallel to the shore along the lower beach. The explanation of this phenomenon are several, but all are inconclusive. One supposed reason is the formation by evaporation of a film of salt about each grain of sand; another more reasonable answer is the presence of a certain moisture condition in order to produce the "singing" effect.

As far as the forester is concerned, perhaps the most interesting condition is the existence of the tree and shrub growth. Although the region has no forests of real commercial value, their main interest is, and should be, from a botanical and recreational viewpoint.

Coniferous growth is the scantiest in the dunes. Dwarf juniper (*Juniperus communis* var. *depressa*), tamarack (*Larix laricina*)

in the swamps, while white pine (*Pinus strobus*) and red pine (*Pinus resinosa*) found scattered in the sandy soil, constitute the coniferous growth.

Hardwoods are very numerous throughout the dunes and represent a mixture of the typical Central Hardwoods and Northern Hardwoods types. Under good soil conditions and with protection from the shifting sands, these trees attain a surprisingly good size for this region, whereas on the less favorable sites, the tree growth merely represents so many shrubs.

The oaks are perhaps the most abundant trees throughout the dune lands, with the black oak (*Quercus velutina*) as the most common one. Other oaks present are, shingle oak (*Q. imbricaria*), white oak (*Q. alba*), Hills' oak (*Q. ellipsoidalis*), bur oak (*Q. macrocarpa*) and swamp white oak (*Q. bicolor*) frequent on old beach ridges. The other member of the beech family is the beech (*Fagus grandifolia*) found in rich, cool, loamy woods.

The members of the birch family represented are: hazelnut (*Corylus americana*) abundant in the thickets, hop hornbeam (*Ostrya virginia*), blue beech (*Carpinus caroliniana*) on the banks, and birches of the species yellow (*Betula lutea*) in low, wet woods with paper birch (*B. papyrifera*) rather rare. Speckled alder (*Alnus incana*) common in moist thickets and along streams, is the other member of the birch family present.

The willow family has the widest range of species represented by any one family. Willows serve their purpose well by holding the sands in check, and are found widely distributed under numerous conditions. The species present are: black willow (*Salix nigra*), peach-leaved (*S. amygdaloides*), crack willow (*S. fragilis*), white willow (*S. alba*), sandbar (*S. interior*), and pussy willow (*S. discolor*). The poplars consist of: silver poplar (*P. alba*), quaking aspen (*P. tremuloides*), large toothed aspen (*P. grandidentata*), cottonwood (*P. deltoides*) and balsam poplar (*P. balsamifera*) sparingly.

The common walnuts, the butternut (*Juglans cinerea*) and the black walnut (*J. nigra*) are found in the better sites, while the other members of the walnut family, shagbark hickory (*Carya ovata*) an dpignut hickory (*C. glabra*) are found in the sandy woods. Only one species of sassafras (*Sassafras officinale*) is present, but this plant is the most common woody plant found in the dunes—usually in a shrub form.

In the nettle family, there are the slippery elm (*Ulmus fulva*) found in rich, wooded dunes, and the white elm (*Ulmus americana*); hackberry (*Celtis pumila*) a dwarf shrub found on tops of bare, high dunes, while the last member of this family is the mulberry (*Morus alba*).

The maples are represented by: sugar maple (*Acer saccharum*), silver maple (*A. rubrum*) the most common one which is found in low woods and bogs, and the boxelder (*A. negundo*) present along streams.

Species of trees and some of the shrubs constituting only a few members of the other families may collectively be listed among the following: sycamore (*Platanus occidentalis*), infrequent along the creeks; white ash (*Fraxinus americana*) in the woods along the creeks; witch hazel (*Hamamelis virginiana*), found frequently in dune woods; honey locust (*Gleditsia triacanthos*), and black locust (*Robinia pseudo-acacia*) are the tree members of the pulse family. Basswood (*Tilia americana*) is found common in shrub form. Black gum (*Nyssa sylvatica*) is very common in low, marshy woods; cornus species such as the flowering dogwood (*Cornus florida*) and Red Osier dogwood (*C. stolonifera*) are also very abundant. The money tree (*Ptelea trifoliata*) is very profusely scattered everywhere. The harmless staghorn sumach (*Rhus typhina*) and its poisonous relatives, the poison sumac (*Rhus vernix*) and poison ivy (*R. toxicodendron*), are quite abundant.

Trees, shrubs and herbs of the rose family are numerous, with the following species serving as typical representatives: wild plum, all kinds of cherries, chokeberry, crab apple, service berry, hawthorn, roses, ninebark, raspberry, blackberry, cinquefoil and the wild strawberry. Gooseberry and blueberry are the other edible berries found.

Numerous species of violets and members of the mustard family are present. In the thistle family, one finds a good representation in the form of such species as goldenrod, aster and sunflower. Two very common species found are: common elder (*Sambucus canadensis*) of the valerian family, and honeysuckle (*Lonicera dioica*) of the honeysuckle family, abundant on dunes and the banks of streams. Wild grapes are present in numerous places, crawling along the sand or climbing up trees. Species of the purslane family and buttercup family are numerous.

Without going into the realm of the herbaceous plants present, it might be of interest, however, to mention a few of the species, which include the following: spiderwort, lilies, Jack-in-the-pulpit, false Solomon's seal, iris, orchis, ladies' tresses, tumbleweed, sedges, bulrushes and cat-tails; grasses such as beard grass, wood grass, panic grass, foxtail grass, sand bur, wild rice, timothy, bent gras, and the very common dune grass (*Calamovilfa longifolia*).

The total number of plant species recorded to be present in these dune lands are over 1,200. Insects found inhabiting this region constitute a still greater number. It is no small wonder

that far-sighted people have long ago realized the value of this land of nature. The Indiana Department of Conservation is to be commended on its foresightedness and achievement in setting aside a portion of those interesting dunes in the form of a state park, for only in such a way the full beauty and recreational facilities can best be perpetuated.

MOUNTAINS

I tried to love your mountains
With their high and sunlit summits,
Their low white clouds that broke like waves
Against great granite scars:
The sound of drowsy water
As it trickled to the rivers,
The trees like index-fingers
Ever pointing to the stars.

I tried to love your mountains . . .
The silver peace that lingered
In sheltered nooks, and curving paths
Beneath some vine-hung tree,—
But I could smell the tang of salt
Where great blue waves were breaking,
And in my ears I ever heard
The sand-dunes calling me.

When you get to know a fellow,
know his joys and know his cares,
When you've come to understand him
and the burdens that he bears,
When you've learned the fights he's
making and the troubles in his way,
Then you find that he is different
than you thought him yesterday.
You find his faults are trivial
and there's not so much to blame
In the brother that you jeered at
when you only knew his name.

—*Edgar A. Guest.*

Honktown, Ore.
April 1, 1933.

Hello Hank,

You were asking me in your last letter how things stood up out here for work and I'm here to tell you they're plenty tough.

Why, just a stretch ago I went down to the slave market to knock me down a job so I could fight for my cakes and it was plenty mean. I snaked in the office and the shark told me to wait my turn with the rest of the herring-chokers. So I had to go wait in line with two bohunks, a couple of breeds, a frog, a cotton picker, a ski-jumper and a square head.

Well, when my turn finally came I had a chance at hook tending, choker setting, or donkey punching. The shark told me about a gypo outfit down the road about two miles that wanted a couple of fallers. Well, you know how I like my juniper-juice, and since a flop in the bull-pen in this town ain't so bad I ups and glommed on the job with the gypo outfit, just to be close to town.

I went down and gave the layout the once over and decided I'd like it. The grub shack looked pretty good and you know how I like the chuck. They had a gut-robber, two flunkeys, and two pearl divers working in the kitchen, so it looked pretty swell from that angle, providing that the meat-burner wasn't too bad.

I looked up the pay cheater and he told me where I could find the bull of the woods. The gaffer kind of sized me up and got my bore and stroke and then asked me if I was a Wobbly. I told him I was a damn good timber beast but no Wobbly. So I got the job. He told me I could start in the morning at ten sawbucks a month, but I'd have to pay him four sawbucks and a vee every month for my chuck and a flop every night. So I said it was jake.

The next morning after a feed on monkeyblankets, salves, and sand, beside a few cackleberries, I took my Swede fiddle and a little Snooser to work with me and started in. But he was a dingy bindlestiff with a gimp in the right foot and not worth a darn. They later gave him a job digging a slop trench with a ukulele.

I later got a half warwhoop for a sidekick and he at least didn't drag his feet when he rode the misery whip. The bull said we got along jake. The only trouble with the bow-and-arrow was that he took up trying to spit-quick-or-puke and he wasn't used to it. Made him so dizzy that he didn't know whether Socrates was poisoned or hit in the back with a bull hook. Right now I'm falling with a Scandinavian from the old country direct.

By the way, Old Jim, the gandy dancer, got in a fight and

got hit in the head with a clam gun and cashed in his chips. Too bad, too, after he carried the banner to pull through the hard winter.

Well, so long,

Eric.

WOOD YOU BELIEVE IT?*

RUSSELL E. GETTY

One bright summer day a ——— looking man, named ———, sat on a —— ——— by several years than the girl, ———, who shared his seat on the ——— looking out across the ———. His dog idly watched an air——— fly overhead.

"I ——— for some good fishing, but I believe ——— ——— be scarce in these waters. What do ——— think?" he said, knocking the ——— from his cigar and offering her a piece of ———.

Just then he saw the girl ——- —— her hand to her heart.

"Are you ill?" he asked.

"No, indeed, I am never ———;——— healthy girl does not exist. I was afraid the ——— bite. Just hand me my ——— coat. ———ling, I am all right now."

"That's a ——— of a coat."

"Yes, I asked ——— to buy me a raccoon coat, but he ——— could afford this."

"Why doesn't he ——— for the money he owes him? The old ———."

"He says he never ———.———priced fur does not wear well, but a better lining of ——— ——— improve the garment."

"Oh, Oh!" she cried. "There's a bug on my arm."

"——— ———? Pshaw. It's only a ———."

"Well, I hate bugs. The things I've ——— ——— make anyone look upon them with aversion."

Just then the hound treed an opossum. First the ——— bark at the opossum, then the ——— ——— run from the dog. It was very amusing.

"———, ———," she laughed. "What a comical ——— of animals."

——— looked so sweet that ——— could not resist kissing her ——.

"Don't," she said. "You may kiss ——— but you daren't kiss me."

At this rebuff ——— began to ———, but soon he controlled his grief and simply said, "———, baby."

*Can you fill in the blanks by using the specific or generic names of some common trees and shrubs? The correct answers are found on page 87.